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NEW DIMENSIONS FOR AMERICAN HIGHER EDUCATION *

One of the prerogatives of the President of the Association of Land-Grant Colleges and Universities -- in fact the only prerogative which I have been able to discover -- is the privilege, indeed the duty, of delivering the annual president's address. If I follow the example of my illustrious predecessors in this office, I am required to deal not with the small ephemeral problems of our great educational enterprise, but with the broad and basic issues and perspectives before us. In the words of the immortal Lincoln, the President under whom the Land-Grant Colleges and Universities were first established; "If we could first know where we are, and whither we are tending, we could better judge what to do, and how to do it."

My function in addressing this distinguished gathering today is thus to raise certain large questions. Where does American higher education stand today? Where is it going? And what ideas and principles can we use as guides to the future?

I will give a brief answer to all of these questions right away. American higher education faces changes so great and so rapid as to amount to a revolution. It must go forward, in the positive and dynamic spirit of the American Revolution. And the ideas and principles we can use as guides are those which have always inspired American Education, and more particularly the Land-Grant College movement which is its more characteristic and creative expression.

The Land-Grant College movement is a natural development from, and practical expression of, the spirit of the American Revolution. Our revolution is still very young, in the long perspective of history; and its principles are still valid, still not fully worked out; if we continue to act on them, we can go forward confidently, and we shall win convinced admirers and imitators throughout the world.

Education has always been our main lever for constructive social change. The earliest immigrants to Massachusetts used some of their meager resources to set up public schools. The founders of the Constitution saw clearly that the new republic could not become great unless all its people were educated up to the responsibilities of citizenship. The founding of the Land-Grant Colleges carried forward the same idea: that democracy meant not a leveling down but a general upgrading of the quality of life for all the people.

*Address by Dr. Lewis Webster Jones, president of Rutgers, the State University of New Jersey, and president of the Association of Land-Grant Colleges and Universities, at the 69th Annual Meeting of the Association, East Lansing, Michigan, November 15, 1955

John Quincy Adams put his faith in science and education as the twin forces which would build a truly new and truly great civilization in America. The Land-Grant Colleges were to be the agencies through which science would be brought to bear on the problems of every day work and living. At the same time, they were to teach the traditional liberal arts, bringing to ordinary working Americans the knowledge which had hitherto been the monopoly of the educated few in the learned professions.

The idea of using colleges and universities to teach people how to do their work more effectively, and the idea of educating everybody up to the limit of his ability, are relatively new and extremely productive ideas. The present strength of America is precisely this: that we have a larger proportion of educated people than has any other country, people who can function well in government, in community affairs, and in all branches of industry, agriculture and the service occupations. That is the secret of the much-vaunted "American Know-How." It is also the key to the comparative lack of serious class-conflict: no one in this country ought to feel himself or his children held down below their real capacities because of lack of educational opportunity.

Two new dimensions confront us in our task. One is the rapidly changing character of the world economy. The second is the sudden increase in the numbers to be educated.

Let us consider first the changing world dimension. Our business, as educators, is with the future. We have to prepare our students, not for the past, not for a static present, but for the social and economic conditions which will obtain during their working lives. Obviously, we can't pretend to foresee all of these conditions accurately. But we can attempt to assess the implications of certain revolutionary changes which are even now occurring, or are on the visible horizon.

We are suddenly and intimately connected with all parts of the globe. In a sense, the world has become a closed container, with no more lands to discover, no new geographical frontiers. We feel the pressures building up, feel ourselves to be rubbing elbows, crowded up against, all sorts of new neighbors. The scientific culture -- or rather the material culture based on science and technology -- has spread all over the world. Parts of Asia and Africa are centuries behind the West in economic development; but they have accepted and want to adopt the methods and material aspirations of the West. They are not willing to wait centuries to get much closer than they are now to our material standards. Until they do, we must expect a state of tension which we cannot ignore, nor easily relieve.

Nuclear power is likely to bring more drastic changes, both in our national economy and in our relations to the world economy, than did the invention of the steam engine, and the colossal increases in productivity achieved through the use of fossil fuels.

The new revolution will be world-wide and rapid, in contrast to the localized origin and slow spread of the original Industrial Revolution.

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The changes in world political relations, in the sources of energy, in methods of production such as we already see in the growth of automation, the probable long-run political effects of an extremely complex, large-scale productive apparatus beyond the comprehension of ordinary common sense, all are matters of concern to education.

The future is developing with unprecedented speed into something radically different from the familiar past. The feeling that this is so is widespread and uneasy. It gives rise to such expressions of foreboding as George Orwell's 1984, a horrifying picture of a political structure modeled on the machine. It also inspires such optimistic, if rather superficial and saccharine, visions as the one presented in a recent TV show, imagining the world of 1976. 1976 had nothing better to offer than more and better push-buttons. Even such age-old chores as washing wriggling small boys behind the ears were eliminated by a remarkable gadget which sort of blew the dirt off. But the TV presentation, though it ducked all problems of political, economic or international organization, did make one good point: that the shape of the future is to a great extent a matter of choice. It will be influenced by what we do, and what we value.

It is hard to hang onto a faith in our own powers to direct our national fate, when so many people feel that we are on a sort of gigantic roller-coaster, carried along by forces which we can dimly see, but which we can neither fully understand nor in any way control. But it is a faith we must recapture and strengthen if we are to be true to our American tradition. The American Revolution was made by men not afraid of the future, not afraid to tackle new conditions, and not afraid to invent new methods of achieving clearly held ideals. I repeat that the future is the business of education, and in this country we have always proceeded on the assumption that we can use education as a lever to make the future better than the past.

Certainly we ought, in our research, and in our courses of instruction, to turn our eyes and those of our students towards this continuing goal.

Above all, we ought to tackle the future courageously, focussing on its great opportunities rather than on its difficulties.

A direct effect which the coming economic revolution will have on education is that it will increase the need for educated and trained people. This will be no more than an acceleration of a long-existing trend in our social organization, to which American education, spearheaded by the Land-Grant College movement, has responded with remarkable sensitivity. As Peter Drucker has recently pointed out, English education took as its task the training of rulers; and did a notably good job; German education trained subjects, and this turned out badly when they fell subject to Hitler; but American education has trained neither rulers nor subjects, but citizens. It has been responsive to the changing needs of the economy for knowledge and skill of all kinds. It has been so successful that it is now being widely imitated in other countries. England is broadening its educational base, and giving much more attention to technical training. West Germany is attempting to provide a more democratic

education. And Russia seems to have embraced the earlier American enthusiasm for education as the bootstrap with which to raise her technical and economic standards and increase her military power. It would indeed be ironic -- or, more seriously speaking, tragic -- if we should falter in our own educational faith at this point.

The new world dimension constitutes one of the greatest challenges we have ever faced. It is comparable in novelty, in potentiality, and in the opportunities it offers, to the conditions which faced our forefathers at the time of the American revolution. I hope we can make an equally imaginative and courageous response to an immensely broadened and more complex world environment.

The most immediate problem the colleges and universities must deal with is, however, the new domestic dimension: the increase in the number of students.

Our domestic population growth has exceeded all expectations and confounded the experts who in the 1930's proclaimed a static economy, and warned against the "twilight of parenthood," and a probable decline in numbers. After the low level of births in the Depression years, we have experienced a marked and sudden increase. As a nation, we are in the position of parents who, having prepared for one baby, are blessed with triplets. Our joy, like theirs, is not unmingled with consternation.

It is now clear that the basis for a doubled college enrollment by 1965 or 1970 already exists, in this large new generation. The college-age population will go up markedly in the next few years, and will remain high and increasing thereafter as this generation goes through the child-bearing ages. It is not therefore a situation comparable to the sudden influx of students immediately after the war, which was a temporary result of two factors; the damming up of college entrance due to military service, and the financial assistance provided by the G. I. Bill.

But the mere increase in the college-age population is not the only new dimension. The situation is comparable to the increase in high school enrollment in the early years of this century. Then, for the first time, the proportion of boys and girls demanding a high school education increased markedly.

Today, the demand for higher education has taken a similar jump: a larger proportion of the larger population wants to go to college.

Both the increase in numbers, and the increase in the proportion of young people demanding a college education are irreversible. The first is a biological fact: there are the young people, and we can no more ignore or neglect them than could the family with triplets ignore or neglect their offspring. The second is a social and economic fact: we can't maintain or improve our complex economic plant without a greatly increased proportion of trained personnel. We have to accept these facts and deal with them realistically. I hope we shall deal with them cheerfully and courageously, in the American spirit.

As I listen to some of the discussions about the state of higher education, I wonder what has happened to that spirit. The tone is dismal, not at all related to the Spirit of '76. A favorite expression is "the coming tidal wave of

students", usually pictured as "about to engulf us." This is unpleasantly reminiscent of "the devastating torrent of babies," which according to Malthus, would always sweep away any possible economic gains, and which would forever condemn a substantial proportion of the human race to starvation and misery. The tidal wave is a poor analogy anyway, since the increase we expect is not going to pass or recede. Nor should we wait to be "engulfed" by it, but rather determine to rise with it to a new and higher level.

I dislike hearing our new opportunities so frequently referred to as "headache". A headache is a negative sort of affliction, suggesting neurcses, inner conflicts, or possibly a hangover. Of course we are facing tremendously difficult problems; but if we must use a physiological analogy, let us call the resulting discomforts "growing-pains." We certainly must grow, and we ought to welcome the prospect.

The most obvious and pressing problem is of course the expansion of facilities and a staff to provide for doubled enrollment in the next ten to fifteen years.

Some of the observable worrying and head-shaking seems to be due to two related notions; one, that the country can't afford to provide higher education for so many people; and two, that college is a luxury. Neither idea will bear examination.

Looking at the United States economy as a whole, it is obvious that we can afford to educate our young. The world has never seen such a productive economy; such a high level of national income has never before been dreamed of. It is absurd to suppose that we could not, if we would, have the necessary schools and colleges. It is shameful, indeed, that our educational equipment is already so inadequate in many respects. I sometimes wonder if we are going to build larger and larger super highways, more and more crowded with larger and larger cars, leading to larger and larger mental hospitals; while schools and colleges remain overcrowded, teachers underpaid, and half our most gifted young people cannot afford a college education.

The problem of paying for the necessary increase in our educational plant is not a lack of national wealth. The problem is rather that of finding acceptable ways of channeling more of our productive power in different directions. If we don't rapidly turn more of our national purchasing power in the direction of education, we will starve the goose that lays the golden egg. Our civilization is uniquely dependent on science; on basic research, applied research, and on a constantly renewed stream of trained personnel. Moreover, as is repeatedly pointed out, our competitive place in the world is at stake. Russia is spending 7-9% of her national income on education, we spend only about $1\frac{1}{2}\%$ of ours.

Higher education is not an individual luxury, the enjoyment of which has no effect on the nation as a whole. It is a necessity, looked at from the national point of view. Indeed, it is our greatest natural resource. And

from the individual point of view, it is increasingly a right, for all those who have the ability and point of view, it is increasingly a right, for all those who have the ability and drive to learn -- the modern basis of that equality of opportunity which America has always valued so highly.

We can no more deny the expanded generation of young people an opportunity for a good education than we could deny them food, clothing or housing. Like the family with the unexpected triplets, we must give each of them as good a chance as we can, even though it means cutting down on less important expenditures. Education ranks among the first necessities.

As a nation we have to spend more, and expand our educational facilities to at least double their present size during the next ten to fifteen years. Limitation of enrollments is not a possible American solution. Its impossibility can be readily seen if we ask the question: whose children are going to be excluded.

How much of the increase each institution or type of institution will take on will vary according to circumstances. Both the private and public colleges and universities recognize their responsibilities. But by and large, the Land-Grant Colleges and State universities and the great urban universities will be called on to assume the larger share of the increase in the numbers of students to be educated. All of us must make our plans boldly and imaginatively; and I believe that such an approach will be the most effective way to secure the necessary funds.

But our plans should not stop at mere arithmetical multiplication, doubling what we do now. The pressure of the present crisis offers a golden opportunity to do much better than we have done so far.

The late President Ray Lyman Wilbur of Stanford has remarked that changing a university curriculum is something like moving a cemetery. But a flood can do a rapid and effective job of moving cemeteries; and I welcome the flood or tidal wave analogy if it calls attention to the possibility of using the influx of students to accomplish some long overdue educational improvements.

For example, we must use our physical plant more economically. Already there have been some excellent studies along this line. Part of the increased numbers can be accommodated by the fuller use of classroom space, through better scheduling. New buildings can be more economically planned by proper attention to the actual size of different kinds of classes, and their normal distribution.

The recruiting of an adequate number of good teachers is more difficult. Shortages in most teaching fields are already being felt. We need to start now to persuade and induce more well qualified young people to enter the college teaching field.

But we need also to take a searching look at some of our practices, from the point of view of teaching efficiency. I believe we can effect economies which will at the same time improve the product.

Now efficiency is the effective performance of a particular function, with maximum economy of means. Education is not comparable to an industrial operation. The function of education is to develop the potential capacities of individuals, as human beings, citizens, and competent workers, in that order of importance. But the fact that we must keep in the forefront the aim of developing individuals does not mean that the ideal method is the classic one of Mark Hopkins -- a log, and one student at a time sitting on the other end of it. This would make education as expensive as psychoanalysis.

We must be inventive in devising labor-saving methods for teachers, as we have for all other professional and productive workers. Only by increasing productivity have the real wages of industrial workers been raised. Probably the best way to increase teachers' salaries is to effect a comparable increase in their productivity.

If Mark Hopkins merely lectured to each successive occupant of the log -- as so many teachers in fact lecture to large or small classes -- his work would be less repetitive and far more comfortable if it were transferred to a well-equipped lecture hall. Some subjects, some degrees of advancement, do require small numbers and non-lecture methods. But there is nothing sacred or universally desirable in small classes as such. It is a matter for discrimination and intelligent planning. Experiments now underway with closed-circuit television seem to offer one promising method for increasing the efficiency of instruction in the basic subjects at the ingenuity to this problem as we have to the problems of efficient production in industry and agriculture.

Everybody agrees that one aim of education is to teach students to think for themselves. Like the preacher in Calvin Coolidge's story, we are in favor of this, as he was in favor of virtue. But we might do more about developing independence of mind in students if we did less intellectual baby-sitting. We tend to over-teach, to spoon-feed our students, and forget that education is an active process which students must undertake for themselves. We might, for example, economize teaching time by cutting down on the number of class meetings, especially in subjects where reading, writing and digesting are the essence of learning. If the object is made that the students are not used to this, one can only ask: when will they be? We don't want to continue into the graduate school methods appropriate to the grade school. We don't want to prolong infancy, but to develop maturity.

Another beneficial operation which might be effected under the pressure of necessity is the drastic pruning of the curriculum. There is an awful lot of dead wood, an awful lot of bushy, weedy proliferation. It has almost reached the point where no one expects to know anything, from how to manage the school waste paper baskets to how to deal with one's relatives, without taking a special course in it, and getting a certificate.

Pruning might well strengthen the most productive branches of the academic tree. The universities could concentrate on doing a really excellent job, at the undergraduate level, on those courses which are most important for the general

education of most students, or which form the basis for a great variety of specialized practical applications. Narrower specialties should be taught mainly in graduate or professional schools, trade schools, short courses and extension work. Some of those now taught in colleges could be better handled by on-the-job training. I would start by eliminating the so-called "snap" courses.

In short, the Land-Grant Colleges and other public institutions can and must provide not only more education, but better education, in the coming years. Careful attention to economy will be necessary; but increases in teaching efficiency should not only lower the unit costs of higher education, but increase its quality.

Here I should like to say something about the much-worried question of quality and quantity. The Land-Grant Colleges are concerned with large numbers; and a good deal of fussing is going on about the supposed lowering of standards which will accompany a further development towards what is referred to as "mass education."

Some of the discussion seems to reflect a prejudice in favor of smallness as such. Quality is seen as opposed to quantity. But a thing can be small and bad, or big and good. There is certainly no necessary relationship between size and quality in educational institutions. A class of twenty taught by a mediocre teacher is not better than a class of 200 taught by a first-class man. There is no evidence that all small colleges do a better job than all large universities. The odds are indeed against it. The slogan "bigger and better bathtubs" is supposed to typify the most naive aspect of American materialism. But the fact is that we have far more and far better lavatory facilities than we had fifty years ago, and I for one do not deplore it. One is certainly not a deluded materialist if one thinks things can be both bigger and better: cut out the alliterative "bathtubs" and substitute schools and colleges, and the statement that we want both bigger and better educational facilities is entirely in accord with the traditional -- and so far strikingly successful -- philosophy of the Land-Grant Colleges.

The idea that the increased enrollments will necessarily mean a lowering of standards seems to be based on some foggy thinking. Obviously, since the increase in numbers will come mainly from the larger population of college-age people, there is no reason to suppose that they will be less able than previous crops. They will be about the same. They may be worse prepared, but that would be because of the current crowding of the secondary schools, and I believe would be temporary. If we could find ways of getting a larger proportion of the top quarter of high school students to college, we might even raise the average level of ability as we increased enrollments. The only way standards will be lowered will be if we fail to provide adequate teachers and facilities for the larger student populations.

A related idea is that the coming jump in applications for admission gives the colleges a wonderful opportunity to become more selective, while holding enrollments near to the present level. Would this do something valuable,

generally referred to as "stepping up quality"? I see no reason why it should. If all other things remained the same -- teaching methods, curriculum, facilities and so on -- the slightly brighter students would be getting the same old education. Certainly the quality of the population as a whole would not be increased if a smaller proportion of it is educated.

Another assumption is that a good many students now in college ought not to be there, and that they could now be replaced by more worthy material. There are certainly some students in every college who are there for reasons other than those stated in the catalog section on "Aims." Some of these could be saved by better teaching, some by tougher demands. There is a lot to be said for raising standards in this sense, and asking the non-serious student to "move over and out" and make room for one who really wants an education. This ought to be done anyway; it requires general revision of educational practices and attitudes. But we cannot hope that these will occur in response to increased pressure for admission, and greater selectivity.

The idea that higher education is only for the select few is quite inapplicable to American conditions. This country was not built by an elite, and it is inconceivable that it should ever be run by one, unless it deteriorates into a totalitarian society. American education in both small and large institutions has been justly criticized because it does not do enough to single out and develop the really talented people. These will always be a small minority, since by definition they occupy the narrow upper end of the bell-shaped curve representing the distribution of ability. We do need to remind ourselves constantly that democracy does not mean mediocrity. It must cultivate excellence. We ought to revise our educational practices to afford the greatest possible opportunities for development for all our most able students. But that is by no means the only worthy task of education.

We are also committed to the task of educating the large majority of the people, those who occupy the middle bulge of the bell-shaped curve. Among them can be found a great variety of abilities which education ought to help discover and develop.

Now I have the greatest sympathy with the private colleges who view with alarm the prospect of expanding. They have formidable financial problems. All feel the pressures of raising funds for their present operations, and they are understandably reluctant to embark on expansion when each additional student represents not only additional capital needs, but an additional annual deficit. That may be why so many of them, after careful consideration, feel that they are now at the "optimum size." I notice that alumni of any growing institution put the optimum at the size it was when they were in college; and even students in college today feel that things are pretty cozy now, and they deplore the prospects of further growth. How optimal can you get, I wonder? I seriously doubt that any reliable measure of the optimum exists, and I think many of our private colleges could expand without loss of their special character and values, if some way could be found of financing their growth.

I hope they will do so. I am wholeheartedly in favor of our present rich variety of educational offerings. It is sound and wise to have a wide range of choice, and some luxury products, in education, just as we enjoy room for different tastes in housing, clothing, music and so on. But let us not assume that only the expensive methods of education are excellent, or that all of them are excellent in every respect. We have had great men emerging from all parts of the country, from every type of educational institution. The same is unfortunately true of dopes. Nor does the idea that individuality is suppressed in the so-called mass-education institutions, fostered only in the smaller colleges, hold water. The products of some of our Eastern colleges are indeed so recognizably alike that they have inspired a style in men's clothing; the Ivy League cut. I have yet to hear of a Land-Grant College cut.

I don't want to sound antagonistic or partisan. I would enthusiastically support every means for enlarging financial aid to private colleges, and for giving greater support to all our institutions of higher learning. But I am fed up with the tone of apology or disparagement one often hears concerning the most typically American educational institution: the large, publicly supported university. Its record needs no apology, it is being imitated for very good reasons all over the world.

There is no doubt where the Land-Grant Colleges and Universities stand, as we face the new dimensions in the American economy, in the world economy, and in education. We accept our new responsibilities in the same spirit which inspired our founders. The educational movement of which we are a part has taken hold, and is still growing strongly, both because it is a realistic adjustment to the needs of an advancing technological civilization, and because it expresses our national idealism.

Let us therefore resolve to go forward in a positive spirit, and not for merely negative reasons: not because we are afraid of killing the goose that lays the golden egg by skimping on research; not because we are scared into keeping up with Russia; but because we value opportunity, and because we believe that we can use science, research, intelligence and informed goodwill to enrich individual lives, and to solve the technical, social and moral problems which confront our rapidly changing world.



